I-motifs in DNA Are Preventative and Not Causative in Carcinogenesis - Garvin Study Important Although Wrong Conclusions Reached

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Introduction

https://www.garvan.org.au/news-resources/news/researchers-map-50-000-of-dna-s-mysterious-knots-in-the-human-genome

Published yesterday by the Garvin Institute of Medical Research, a map has been created of esoteric structures found at about 50,000 points in the human genome known as i-motifs in which the double-helix structure of DNA is interrupted and where a piece of DNA shaped like a hook juts out from the double-helix and bends to run parallel with it for a short distance.

Although the Garvin's description of the shape and location of these structures is a significant and noteworthy contribution to our knowledge of genes, particularly oncogenes, the Garvin research team came to the conclusion that the frequent proximity of these i-motifs to oncogenes indicated that eliminating these structures would be a viable avenue for the prevention of cancer. This conclusion is not only wrong, but could needlessly put clinical trial patients at risk as this author firmly believes this conclusion is essentially the inverse of the correct conclusion.

Abstract

The collocation of i-motifs near or within the boundaries of known oncogenes is indicative of the fact that i-motifs serve the function of preventing the transcription of genes in those zones from one side of the boundary formed by the i-motifs to the other. I-motifs are evolutionary in nature and are meant to mitigate the risk of cancer by preventing transcriptions which can lead to cancer.

If this is the case, it stands to reason that eliminating these structures would actually massively increase the risk of cancer. If a patient is known to have an oncogene associated with elevated cancer risk, a gene therapy aimed at supplanting this gene with another gene would certainly mitigate risk. It stands to reason, however, that purposefully adding additional i-motifs to the problematic areas would be an easier therapy to implement than one involving the replacement of whole genes. It must also be taken into consideration that the act of editing genes already prone to carcinogenesis may be intrinsically risky as any attempt to cut or copy these genes could serve to trigger a carcinogenesis, ironically.

Conclusion

For possible inoculation against cancer, i-motifs are a promising target for research and should be pursued, although it would be useful if incorrect conclusions were not made from the get-go concerning such promising research leads. Cancer risk mitigation may play a role in the future of medicine even in a world in which cancers may be treated with relative ease by Reactin-Chelating Glucose Analogs of the sort promulgated by this author in 2021 which, by design, accumulate in hypoxic solid tumor masses at a greater rate than in other tissues wherein reactin is present, enabling much greater doses to be administered than in the case of traditional glucose analogs.